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IN THE CLAIMS:

1. (Cancelled)

2. (Currently Amended) A panel display apparatus comprising:

a gas discharge panel in which a plurality of pairs of first and second electrodes covered with a dielectric are arranged between a pair of substrates; and

a driving circuit which accumulates a wall charge on the dielectric to write an image, and successively applies a plurality of sustain pulses to the first electrode and the second electrode to perform a sustain discharge in areas where the wall charge has been accumulated,

wherein said driving circuit applies pulses to the first electrode and the second electrode to cause a potential difference between the first electrode and the second electrode generated,

~~wherein immediately before a leading edge of each sustain pulse, the driving circuit generates a potential difference in the form of a short pulse between the first electrode and the second electrode for~~ said potential difference includes a short pulse being immediately before a leading edge of each sustain pulse and having a predetermined period that is no more than 100ns,

~~wherein a polarity of the potential difference in the form of a short pulse is opposite to a polarity of [[a]] the adjacently followed sustain pulse of said potential difference generated between the first electrode and the second electrode by the sustain pulse and an absolute value of a voltage of the short pulse is no smaller than an absolute value of a voltage of the sustain pulse.~~

3.-4. (Cancelled)

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1 5. (Currently Amended) The panel display apparatus of Claim [[3]] 2, wherein a  
2 time during which the absolute value of the voltage of the short pulse is no smaller than the  
3 absolute value of the voltage of the sustain pulse is no more than 50 ns.

1 6. (Previously Presented) The panel display apparatus of Claim 2, wherein an  
2 absolute value of a voltage of the short pulse formed by the driving circuit is no smaller than 1.5  
3 times an absolute value of a voltage of the sustain pulse.

1 7. (Currently Amended) A panel display apparatus comprising:  
2 a gas discharge panel in which a plurality of pairs of first and second electrodes  
3 covered with a dielectric are arranged between a pair of substrates; and  
4 a driving circuit which accumulates a wall charge on the dielectric to write the  
5 image, and successively applies a plurality of sustain pulses to the first electrode and the second  
6 electrode to perform a sustain discharge in areas where the wall charge has been accumulated,  
7 wherein said driving circuit applies pulses to the first electrode and the second  
8 electrode to cause a potential difference between the first electrode and the second electrode  
9 generated,  
10 ~~wherein immediately before a leading edge of at least a sustain pulse of the~~  
11 ~~plurality of sustain pulses which is first applied, the driving circuit generates a potential~~  
12 ~~difference in the form of a short pulse between the first electrode and the second electrode by~~  
13 ~~applying a voltage to at least one of the first electrode and the second electrode for said potential~~  
14 difference includes a short pulse applied immediately before a leading edge of each sustain pulse  
15 and having a predetermined period that is no more than 100ns,

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16 wherein a polarity of ~~the potential difference in the form of a~~ said short pulse is  
17 opposite to a polarity of ~~[[a]] the adjacently followed sustain pulse of each~~ potential difference  
18 generated between the first electrode and the second electrode ~~[[by]] and an absolute value of a~~  
19 voltage of the short pulse is no smaller than an absolute value of a voltage of the sustain pulse.

1 8.-9. (Cancelled)

1 10. (Currently Amended) The panel display apparatus of Claim ~~[[8]]~~ 7, wherein a  
2 time during which the absolute value of the voltage of the short pulse is no smaller than the  
3 absolute value of the voltage of the sustain pulse is no more than 50 ns.

1 11-16. (Cancelled)

1 17. (Previously Presented) A panel display apparatus for displaying an image in a  
2 discharge sustain period, comprising:  
3 a gas discharge panel in which a plurality of discharge cells are arranged in the  
4 form of matrix between a pair of substrates; and  
5 a driving circuit which applies a write pulse to selected discharge cells of the  
6 plurality of discharge cells to write the image, and successively applies a plurality of sustain  
7 pulses to each of the plurality of discharge cells to perform a sustain discharge in the selected  
8 discharge cells, wherein  
9 an absolute value of a voltage of each sustain pulse which is applied to the  
10 discharge cell is higher during a first period than a second period, the first period being a fixed  
11 period from a leading edge of the sustain pulse, and the second period being a period from a  
12 lapse of the fixed period to a trailing edge of the sustain pulse,

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13 a highest absolute value of the voltage of the sustain pulse in the first period  
14 exceeds an absolute value of a discharge firing voltage of the discharge cell,  
15 the absolute value of the voltage of the sustain pulse in the second period is below  
16 the absolute value of the discharge firing voltage of the discharge cell, and  
17 a time during which the absolute value of the voltage of the sustain pulse exceeds  
18 the absolute value of the discharge firing voltage is no more than 100 ns.

1 18. (Previously Presented) A panel display apparatus for displaying an image in a  
2 discharge sustain period, comprising:

3 a gas discharge panel in which a plurality of discharge cells are arranged in the  
4 form of matrix between a pair of substrates; and

5 a driving circuit which applies a write pulse to selected discharge cells of the  
6 plurality of discharge cells to write the image, and successively applies a plurality of sustain  
7 pulses to each of the plurality of discharge cells to perform a sustain discharge in the selected  
8 discharge cells, wherein

9 an absolute value of a voltage of each sustain pulse which is applied to the  
10 discharge cell is higher during a first period than a second period, the first period being a fixed  
11 period from a leading edge of the sustain pulse, and the second period being a period from a  
12 lapse of the fixed period to a trailing edge of the sustain pulse, and

13 immediately after the trailing edge of the sustain pulse, the driving circuit applies  
14 a pulse that is opposite in polarity to the sustain pulse, to the discharge cell for a predetermined  
15 period that is no more than 100 ns.

1 19.-28. (Cancelled)

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1 29. (Currently Amended) A panel display apparatus comprising:

2 a gas discharge panel in which a plurality of pairs of first and second electrodes  
3 covered with a dielectric are arranged between a pair of substrates; and

4 a driving circuit which accumulates a wall charge on the dielectric to write an  
5 image, and successively applies a plurality of sustain pulses to the first electrode and the second  
6 electrode to perform a sustain discharge in areas where the wall charge has been accumulated,

7 wherein said driving circuit applies pulses to the first electrode and the second  
8 electrode to cause a potential difference between the first electrode and the second electrode  
9 generated.

10 wherein ~~immediately after a trailing edge of each sustain pulse, the driving circuit~~  
11 ~~generates a potential difference in the form of a short pulse between the first electrode and the~~  
12 ~~second electrode by applying a voltage to at least one of the first electrode and the second~~  
13 ~~electrode for~~ said potential difference includes a short pulse being immediately after a trailing  
14 edge of each sustain pulse and having a predetermined period that is no more than 100 ns,

15 wherein a polarity of ~~the potential difference in the form of a~~ the short pulse is  
16 opposite to a polarity of ~~[[a]]~~ the adjacently followed sustain pulse of said potential difference  
17 generated between the first electrode and the second electrode ~~by the sustain pulse and an~~  
18 absolute value of a voltage of the short pulse is no smaller than an absolute value of a voltage of  
19 the sustain pulse.

1 30. (Cancelled)

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1 31. (Currently Amended) A driving method for displaying an image in a discharge  
2 sustain period in a gas discharge panel in which a plurality of pairs of first and second electrodes  
3 covered with a dielectric are arranged between a pair of substrates, comprising:

4 a writing step for accumulating a wall charge on the dielectric to write the image;  
5 and

6 a discharge sustaining step for successively applying a plurality of sustain pulses  
7 to the first electrode and the second electrode to perform a sustain discharge areas where the wall  
8 charge has been accumulated,

9 wherein said driving circuit applies pulses to the first electrode and the second  
10 electrode to cause a potential difference between the first electrode and the second electrode  
11 generated.

12 wherein in the discharge sustaining step, ~~immediately before a leading edge of~~  
13 ~~each sustain pulse, a potential difference in the form of a short pulse is generated between the~~  
14 ~~first electrode and the second electrode by applying a voltage to at least one of the first electrode~~  
15 ~~and the second electrode for~~ said potential difference includes a short pulse being immediately  
16 before a leading edge of each sustain pulse and having a predetermined period that is no more  
17 than 100 ns,

18 wherein a polarity of the ~~potential difference in the form of a~~ said short pulse is  
19 opposite to a polarity of the adjacently followed sustain pulse of said [[a]] potential difference  
20 generated between the first electrode and the second electrode ~~by the sustain pulse and an~~  
21 absolute value of a voltage of the short pulse is no smaller than an absolute value of a voltage of  
22 the sustain pulse.

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1 32. (Cancelled)

1 33. (Previously Presented) A driving method for displaying an image in a discharge  
2 sustain period in a gas discharge panel in which a plurality of discharge cells are arranged  
3 between a pair of substrates, comprising:

4 a writing step for applying a write pulse to selected discharge cells of the plurality  
5 of discharge cells to write the image; and

6 a discharge sustaining step for successively applying a plurality of sustain pulses  
7 to each of the plurality of discharge cells to perform a sustain discharge in the selected discharge  
8 cells,

9 wherein in the discharge sustaining step, an absolute value of a voltage of each  
10 sustain pulse which is applied to the discharge cell is higher during a first period than a second  
11 period, the first period being a fixed period from a leading edge of the sustain pulse, and the  
12 second period being a period from a lapse of the fixed period to a trailing edge of the sustain  
13 pulse, and

14 a time during which the absolute value of the voltage of the sustain pulse exceeds  
15 an absolute value of a discharge firing voltage of the discharge cell is no more than 100 ns.

1 34. (Currently Amended) A driving method for displaying an image in a discharge  
2 sustain period in a gas discharge panel in which a plurality of pairs of first sustain and second  
3 scan electrodes covered with a dielectric are arranged between a pair of substrates, comprising:

4 a writing step for accumulating a wall charge on the dielectric to write the image;  
5 and

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6 a discharge sustaining step for successively applying a plurality of sustain pulses  
7 to the first sustain electrode and the second scan electrode to perform a sustain discharge in areas  
8 where the wall charge has been accumulated,

9 wherein in the discharge sustaining step, ~~immediately after a trailing edge of each~~  
10 ~~sustain pulse, a potential difference in the form of a short pulse is generated between the first~~  
11 ~~electrode and the second electrode by applying a voltage to at least one of the first electrode and~~  
12 ~~the second electrode for a predetermined period that is no more than 100ns,~~

13 ~~wherein a polarity of the potential difference in the form of a short pulse is~~  
14 ~~opposite to a polarity of a potential difference generated between the first electrode and the~~  
15 ~~second electrode by the sustain pulse~~ said driving circuit applies pulses to the sustain electrode  
16 and the scan electrode to cause a potential difference between the sustain electrode and the scan  
17 electrode generated,

18 wherein said potential difference includes a short pulse being immediately before  
19 a trailing edge of each sustain pulse and having a predetermined period that is no more than  
20 100ns,

21 wherein a polarity of said short pulse is opposite to a polarity of the adjacently  
22 followed sustain pulse of said potential difference generated between the sustain electrode and  
23 the scan electrode, and an absolute value of a voltage of the short pulse is no smaller than an  
24 absolute value of a voltage of the sustain pulse.

1 35-38. (Cancelled)



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1 39. (Currently Amended) The panel display apparatus of Claim 2,  
2 wherein the driving circuit applies the plurality of sustain pulses alternately to the  
3 first electrode and the second electrode, and, immediately before the leading edge of each sustain  
4 pulse, applies to the sustain electrode, applies a short pulse of a same polarity as the sustain pulse  
5 to ~~one of the first electrode and the second~~ the sustain electrode to which the sustain pulse is to  
6 be applied, for the predetermined period that is no more than 100 ns; and  
7 wherein the sustain pulses are applied to scan electrodes and sustain electrodes  
8 alternately.

1 40. (Currently Amended) The panel display apparatus of Claim 2,  
2 wherein the driving circuit applies the plurality of sustain pulses alternately to the  
3 first electrode and the second electrode, and, immediately ~~before the leading~~ after the falling  
4 edge of each sustain pulse applied to the scan electrode, applies a short pulse of a same polarity  
5 as the sustain pulse to the ~~other one of the first electrode and the second~~ scan electrode, for the  
6 predetermined period that is no more than 100 ns.

1 41. (Currently Amended) A gas discharge panel comprising:  
2 a plurality of discharge cells having a front substrate and a back substrate;  
3 a plurality of scan electrodes running between the front substrate and the back  
4 substrate;  
5 a plurality of sustain electrodes parallel to the plurality of scan electrodes; and  
6 a drive circuit for generating an alternating sustain waveform between the scan  
7 electrodes and the sustain electrodes;

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8 ~~wherein the sustain waveform includes a short pulse for reducing wall charge on~~  
9 ~~the discharge cells immediately followed by a sustain pulse of opposite polarity.~~

10 wherein said driving circuit applies pulses to the sustain electrode and the scan  
11 electrode to cause a potential difference between the sustain electrode and the scan electrode  
12 generated.

13 wherein said potential difference includes a short pulse being immediately before  
14 a leading edge of each sustain pulse and having a predetermined period that is no more than  
15 100ns, and

16 wherein a polarity of said short pulse is opposite to a polarity of the adjacently  
17 followed sustain pulse of said potential difference generated between the sustain electrode and  
18 the scan electrode; and an absolute value of a voltage of the short pulse is no smaller than an  
19 absolute value of a voltage of the sustain pulse.

1 42. (Previously Presented) The gas discharge panel of claim 1 wherein the short  
2 pulse has an absolute voltage that is greater than the absolute voltage of the sustain pulse.

1 43. (Previously Presented) The gas discharge panel of claim 2 wherein the short  
2 pulse has an absolute voltage that is greater than 150% of the absolute voltage of the sustain  
3 pulse.

1 44. (Previously Presented) The gas discharge panel of claim 1 wherein the short  
2 pulse has a duration of less than 100 nS.

1 45. (Previously Presented) The gas discharge panel of claim 4 wherein the short  
2 pulse has a duration of less than 50 nS.

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- 1 46. (Previously Presented) The gas discharge panel of claim 4 wherein the absolute  
2 voltage of the short pulse is greater than 150% of the absolute voltage of the sustain pulse.

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